

Montana Trauma System (MCA 50-6-402) Program Report

Background:

Trauma is any severe, abrupt injury to the human body caused by mechanical, environmental, thermal or other physical force. Trauma is the leading cause of death for all Montanans between the ages of 1 and 44 and it is the fourth leading cause of death for all ages following heart disease, cancer and stroke. Montana leads the nation with the second highest fatal injury rate which is 40% higher than the national average. Montana's injury death rate accounts for more potential years of life lost than heart disease and cancer combined. Trauma is a disease, not an accident –implying random events outside our control. Like heart disease and other diseases, trauma has identifiable causes, established methods of treatment and defined methods of prevention.

The Montana trauma system is an inclusive, voluntary system designed to provide an organized, preplanned response for the state's trauma patients by assuring optimal patient care through enhancement of systems, clinical care processes and facility linkages for efficient use of limited health care resources. The overall goal is to coordinate, achieve, and maintain components of care in order to consistently provide the right care to the public in the right place and within the right amount of time. The principles that guide trauma system development and result in enhanced system linkages are also effective in improving care for other time sensitive diseases such as stroke and myocardial infarction. Additionally, the more that these healthcare systems are well-organized and consistently utilized to respond effectively to daily emergencies and individual patients, the better they are able to respond to disasters and multiple patients.

Rural trauma care in Montana is complicated by geographic isolation, time between injury and discovery, distances to health care and the limited availability of local health care resources. Due to the distances between them and scarcity of resources, all Montana health care facilities must be prepared to provide effective initial care to injured patients while simultaneously expediting the patient's transfer to definitive care. This level of preparation and organization has been proven nationally to reduce the number of preventable deaths and disabilities.

In Montana, a state task force comprised of representatives from pre-hospital, nursing and physician professions, hospital administration, Indian Health Services and state legislators met between 1990 and 1994 to formulate the state's first trauma system plan. In 1990, the department, with input from the task force, implemented a statewide trauma registry database to guide hospital, regional and statewide performance improvement activities.

The initial *Montana Trauma System Plan* was published in 1994 and authorizing legislation passed in 1995. Both called for the formation of a State Trauma Care Committee (STCC), which meets on a quarterly basis and serves in an advisory role on medical and administrative issues regarding trauma care. Three trauma regions, based on patient referral patterns, were also formed. The trauma regions are each

represented by a Regional Trauma Advisory Committee (RTAC) that meets quarterly to identify specific regional trauma needs, collaborate on strategies to address those identified and to define corrective strategies.

In a retrospective analysis, the Critical Illness and Trauma Foundation of Montana reviewed all traumatic deaths in the state occurring from October 1, 1990 to September 30, 1991.¹ The study revealed an overall preventable trauma death rate of 13%. A subsequent study in 1998 was conducted after the initiation of the state's trauma system implementation². The overall preventable death rate had decreased to 8%. The second study demonstrated that efforts to initiate a voluntary state trauma system have had a positive effect on the preventable death rate. However, rates of preventable death have not yet reached what would be ideally seen in a well-established trauma system.

There is much that can be accomplished in the realm of injury control and prevention. Montana's Injury Prevention activities were traditionally addressed through varying grant funds and associated program activities. The 2009 legislature authorized funds to establish an Injury Prevention Program administered in the EMS & Trauma Systems section of DPHHS for the purposes of actively ensuring Montana's citizens receive primary, secondary and tertiary injury prevention through consistent, coordinated and effective program strategies.

Activities completed in FY 2009-2010

The Department's Emergency Medical Services and Trauma Systems Section continues to strive for further development, implementation and coordination of the trauma system. The trauma system development program was funded with \$306,000 of general funds in the last biennium. Primary activities funded included:

Trauma Systems Development

Trauma Center Facility Designation

Designation of trauma centers provides the nationally-recognized method for professional evaluation and recognition of standardized facility components demonstrating integrated trauma programs and involving all phases of patient care. All Montana hospitals must be able to provide optimal initial care for the injured and to function within a regionalized system of care to facilitate rapid transfer to definitive care when appropriate.

Trauma administrative rules were adopted in 2006 that defined the process for Montana Trauma Facility designation including criteria for program components by level of trauma center. Designation site reviews began in 2007 and tremendous progress has been made in designating Montana Trauma facilities. In only three years, thirty-two Montana facilities have been designated in one of four facility-level categories.

An additional 4-8 facilities are anticipated to apply for trauma designation this next fiscal year, eight facilities will receive focused site reviews and eight facilities will be due for re-designation.

Funding for local trauma projects

- Funding is provided to each of the three RTACs, which they use to support projects specific to their region including education programs and scholarships, planning, injury prevention and performance improvement activities.

Trauma Registry Data Collection and Performance Improvement

- A trauma registry software program has been purchased and implemented in nine of the larger hospitals in the state whose trauma patient volumes are large enough to support use of a data collection program. Hospitals utilize the software internally to analyze and trend data, identify patient care and process issues and to conduct data-based performance improvement activities. These hospitals with the software system submit trauma patient data quarterly to the State Trauma Registry.
- Additional data collection has been expanded from twelve smaller facilities in 2006 to forty-three smaller facilities (including 42 Critical Access Hospitals) in 2010. The smaller facilities with fewer major trauma cases submit manual data using a paper abstraction tool. Their submitted case information must then be manually entered (692 patient cases for 2009) into the State Trauma Registry by Department staff. Department staff then trend data submitted from smaller facilities, identify issues and provide performance-based individual feedback regarding local care processes to smaller hospitals. Issues are trended across the trauma regions and state-wide with performance improvement activities implemented to address the trends. Training is provided in-state for both methods of data collection.
- An active, data-driven performance improvement process has been implemented utilizing the information obtained through the State Trauma Registry for healthcare facilities, trauma regions and the state. Data-driven state trauma system performance indicators are identified, trended, tracked and reported to the State Trauma Care Committee and the three Regional Trauma Advisory Committees. Strategies to improve current performance indicators are implemented throughout system linkages. Evaluation of data-driven issues provides sources for initiating new performance indicators and improvement strategies when identified.

Trauma Education for Montana health care professionals

- TEAM - “*Together Everyone Achieves More*” – a trauma education course previously developed by the Eastern Regional Trauma Advisory Committee was centrally revised and updated. This course provides education for all members of a local rural trauma team including law enforcement, dispatch, fire, EMS, nursing and medical providers on processes for developing their local trauma system to provide optimal care to injured patients receiving care in their facility. The course is coordinated through each of the three trauma regions and has been conducted for twelve rural Montana communities, with many more communities requesting the course. The American College of Surgeons Rural Trauma Team Development Course seeks to emulate components of the Montana TEAM course it provides nationally to improve delivery of trauma care education to rural locations.
- The Rocky Mountain Rural Trauma Symposium is held annually and provides trauma patient care education to over 250 pre-hospital, nursing and medical

providers in Montana. Additional meetings and education are conducted at the same time including the Montana Trauma System pre-conference which provides targeted trauma system education for the facility trauma registrars, trauma coordinators, and trauma medical directors. Meetings for groups such as the Montana Chapter of the American College of Surgeons Committee on Trauma were also conducted within this same time period. The location, planning and hosting of these conferences is rotated annually through each of the three trauma regions and corresponding Regional Trauma Advisory Committees.

- Five Advanced Trauma Life Support courses (increased from four annual courses in 2007 due to demand) for physician and physician-extenders (mid-level providers) have been conducted annually to provide trauma education to 160 providers and an additional 60 EMTs and nurses who provide course support as staff. Additionally, an ATLS instructor course was sponsored in 2008 to provide more faculty for the growing demand for courses. The location of these courses is also being rotated among the three trauma regions.
- Support has been provided for basic and advanced Pre-hospital Trauma Life Support courses and Assessment and Treatment of Trauma courses in each trauma region for pre-hospital providers. Additionally, instructor course support and costs for textbooks, instructor materials and training supplies have been supplemented.
- A modular, self-study/self-paced Trauma Coordinator Course has been developed with the initial version posted on the EMS and Trauma Systems Section website. The development of this web-based Trauma Coordinator Course has the goal of improving access to initial education in roles, responsibilities and trauma program components for identified rural trauma coordinators. The roles and responsibilities for trauma coordinators charged with organizing, integrating and managing a facility-based trauma program are many and varied. With staff and medical provider turnover being problematic (especially in small rural facilities), access to basic Trauma Coordinator education is essential for programs to develop, succeed and become sustainable. In addition, extensive web/resource links have been provided within this course.
- Funding has been utilized to support travel for the State Task Force Members to attend quarterly and committee meetings and for local trauma coordinators to attend RTAC meetings, trauma registry training and other educational opportunities. Telemedicine and WebEx formats are also utilized for these meetings to increase access for attendance, decrease costs and decrease risks associated with travel.

Injury Prevention

- The Injury Prevention Program provides funding for the Injury Prevention Coordinator, Bobbi Perkins, and shared services of Jessie Frazier, Epidemiologist. Program funding supports injury prevention activities and implementation of evidence-based interventions for injury prevention within these current priorities:
 - Utilization of existing data to improve and disseminate data surveillance of injuries for Montana populations
 - Build injury prevention program capacity

- Implement a senior fall prevention intervention program
- Work collaboratively with Montana Department of Transportation and other partners to increase seat belt usage and decrease alcohol-related motor vehicle crashes among Montanans
- Monitor unintentional poisoning and identify possible prevention interventions

Trauma Program staffing

- Jennie Nemecek, RN, the Trauma System Manager, Carol Kussman, RN, contract Trauma Coordinator, and Kim Todd, RN, contract Trauma Designation Coordinator provide oversight, assistance and ongoing support for the local, regional and statewide trauma system development activities including:
 - Participating in the quarterly meetings of each of the three RTACs and the STCC.
 - Oversight and coordination of all trauma facility designation processes including site reviews, procedural components and communications
 - Providing support to trauma coordinators, trauma registrars and medical directors in each local medical facility to assist them in developing their own local trauma care system and preparation for trauma facility designation.
 - Primary coordination in conducting various trauma system educational programs and facility consultations in local medical facilities as described above.
 - Coordinate the development of the trauma registry, trauma and related data collection and analysis and performance improvement activities locally, regionally and state-wide. Participate in integration of related data sources and formulate a global data plan.
 - Collaborate in activities for disaster/emergency preparedness and medical response to disaster.
 - Participation in collaborative activities for medical/trauma care for special populations, disease-specific care processes, integration and expansion of systems components for time-sensitive diseases, medical conditions and population-specific issues, integration of all phases of patient care,
 - Provision of technical support to Montana healthcare facilities in evaluation, development and implementation of effective trauma care processes and clinical strategies.

Programmatic planning

The trauma program will continue efforts for enhancement and improvement of the State's trauma system into the next biennium including:

- The department will conduct a third Montana Preventable Mortality study to compare preventable death rate and occurrence of inappropriate trauma care in Montana after twenty years of continued efforts to develop and implement a voluntary inclusive trauma system. Study objectives include;
 - Evaluate effectiveness of the provision of trauma care to injured patients, inclusive of pre-hospital through hospital phases of care.
 - Identify EMS/trauma care system issues that provide a basis for continued development and implementation of regional and statewide data-driven,

performance improvement strategies to improve trauma care and trauma system development.

- Trauma Facility Designation will continue with the goal of recognizing all Montana hospitals and medical facilities that treat trauma patients as designated Montana trauma facilities. Through their efforts at identifying, organizing and enhancing their resources and processes, they are providing optimal, timely and standardized trauma care within their level of trauma facility and within their capabilities.
- The trauma registry, utilizing the current data collection methods, will continue to be expanded with the goal of participation of all of the state's medical facilities. Development of a web-based version of the trauma registry software will be explored for utilization by the smaller facilities to improve access, efficiency and cost-effective data collection, data reporting functions instead of the labor-intensive manual processes both facilities and the Department must currently utilize.
- Explore the potential for integrating and analyzing other, related data. Trauma program staff will participate in data planning, sharing and integration processes.
- Continued support for educational opportunities will be provided to pre-hospital and hospital personnel, trauma coordinators, trauma registrars, trauma medical directors, nurses and medical providers.
- Regional and state performance improvement plans will be developed and performance improvement activities will continue to be conducted at STCC and RTAC meetings.
- Patient care guidelines for trauma team activation, air ambulance activation and inter-facility transfers will be drafted and implemented for regional and state-wide utilization.
- The development of a central medical dispatch system, which can facilitate efficient and appropriate patient transfers, will be explored for potential implementation.